CLAIM AMENDMENTS

1. (currently amended) ~~In a data handling system which uses an actuator arm to support a head adjacent a recording surface and a servo loop to controllably move the actuator arm, a method for canceling an actuator arm oscillation induced by a resonance mode excitation of the actuator arm,~~ A method comprising the steps of:

~~(a) identifying a frequency of actuator arm oscillation induced by the resonance mode excitation;~~

(b) initiating a seek to move ~~the head~~ a moveable arm from an initial ~~track~~ position to a destination ~~track~~ position~~on the recording surface~~;

(c) receiving a position error signal indicative of a position of the moveable arm~~head relative to the recording surface~~;

(d) generating a compensation signal based on the position error signal and an oscillation ~~the~~ frequency of the ~~actuator~~ moveable arm ~~oscillation~~ and adapted to ~~remove~~ minimize a component of the position error signal arising from the ~~actuator arm~~ oscillation frequency; and

(e) applying the compensation signal to control the moveable arm as a feedforward signal ~~the servo loop~~ as the ~~head~~ moveable arm ~~is~~ settles~~d~~ onto the destination ~~track~~position.

2. (currently amended) The method of claim 12, wherein the identifying step (a) comprises steps of abruptly accelerating and decelerating the actuator arm to subject the actuator arm to a broad spectrum excitation, and measuring the actuator arm oscillation resulting from the excitation.

3. (original) The method of claim 1, further comprising a step of entering a track following mode to cause the head to remain over the destination track while removing the compensation signal from the servo loop.

4. (currently amended) The method of claim 1, wherein the applying step (e) produces a notch in an error sensitivity function relating the position error signal to an ~~actuator~~ moveable arm oscillatory disturbance.

5. (original) The method of claim 4, wherein the compensation signal is generated in accordance with the following relation:

$$A(z) = \frac{u_{ff}}{PES} = \frac{z^2[\frac{\mu_0}{\alpha}\cos(\varphi)] - z[\frac{\mu_0}{\alpha}\cos(\varphi + \omega_0 T)]}{\frac{z^2}{\eta} - z[2\cos(\omega_0 T)] + \eta}$$

where u_{ff} is the compensation signal, PES is the position error signal, z is a z transform function, ω_0 is a nominal frequency of the notch, η controls a nominal depth of the notch, μ_0 controls a nominal width of the notch, α is a gain parameter indicative of a closed loop gain of the servo loop at ω_0, φ is a phase parameter indicative of a phase response of the servo loop at ω_0, and T is a sampling period.

6. (currently amended) An apparatus ~~data handling system,~~ comprising:

~~a recording surface on which a plurality of nominally concentric tracks are defined;~~

an ~~actuator assembly~~ controllable structure~~comprising an actuator arm which supports a head adjacent the recording surface~~; and

a servo circuit coupled to the control the controllable structure~~actuator assembly,~~ comprising:

a servo controller which controls position of the ~~head~~ controllable structure in response to a position error signal indicative of a position of the ~~head~~ controllable structure~~with respect to the recording surface~~, the servo controller configured to perform a seek operation to move the ~~head~~ controllable structure from an initial ~~track~~ position to a destination ~~track~~position; and

a filter operably coupled in parallel with the servo controller to receive the position error signal and to generate a compensation signal during a settle mode as the ~~head~~ controllable structure is brought over the destination ~~track~~position, the compensation signal based on the position error signal and an oscillation frequency of ~~actuator arm oscillation~~ the controllable structure induced by a resonance mode excitation during the seek, the

compensation signal adapted to cancel a component of the position error signal arising from the oscillation.

7. (original) The data handling system of claim 6, wherein the servo circuit further comprises:
   a demodulator which generates the position error signal in response to servo data transduced by the head from the recording surface; and
   a motor driver which applies a current to an actuator motor to move the actuator arm, wherein the servo controller generates a current command signal which is combined with the compensation signal to generate a modified current command signal which is used by the motor driver to apply current to the actuator motor.

8. (original) The data handling system of claim 6, wherein the servo circuit determines the frequency of oscillation by abruptly accelerating and decelerating the actuator arm to subject the actuator arm to a broad spectrum excitation, and measuring the actuator arm oscillation resulting from the excitation.

9. (original) The data handling system of claim 6, wherein the filter comprises a second order, linear time-invariant filter with a trigonometric function based transfer function.

10. (original) The data handling system of claim 6, wherein the actuator assembly comprises a plurality of actuator arms each supporting at least one head, and wherein the filter is configured to independently compensate oscillation of each arm.

11. (canceled.)

12. (new) The method of claim 1 further comprising the step of identifying the oscillation frequency of the moveable arm induced by a resonance mode excitation.

not step for

13. (new) A method comprising the step of minimizing a frequency relative to a position error signal of a controlled system independent of whether the frequency is a resonance mode of the controlled system.

14. (new) The method of claim 13 that is further capable of minimizing a frequency relative to a position error signal of a controlled system, the frequency is not a resonance mode of the controlled system.

15. (new) A method comprising the step of increasing a sensitivity of a control system at a frequency to minimize a frequency relative to a position error signal.

16. (new) The method of claim 15 wherein the step of increasing includes increasing an amplitude of the frequency.

17. (new) The method of claim 16 wherein the step of increasing the amplitude includes injecting a signal to increase the amplitude of the frequency.